

IN THE CLAIMS

Listing of claims

1. (Original) A facsimile signal transmitting device comprising:
first storage means for storing therein facsimile signals provided from a transmitting facsimile terminal; transmitting means for generating frame data by combining the current facsimile signals provided from said transmitting facsimile terminal and the previous facsimile signals stored in said first storage means and for outputting said frame data onto a transmission line;
receiving means for receiving said frame data when it is provided by said transmitting means onto said transmission line and for disassembling said frame data into a plurality of facsimile signals;
second storage means for storing therein said plurality of facsimile signals disassembled by said receiving means; and
signal selecting means which, when receiving a frame detection signal indicating that said frame data provided on said transmission line has been transmitted without being discarded during transmission, supplies a receiving facsimile terminal with the oldest one of said plurality of facsimile signals disassembled by said receiving means and, when receiving a frame detection signal indicating that said frame data was discarded during transmission, supplies said receiving facsimile terminal with a facsimile signal corresponding to the oldest one of said facsimile signals stored in said second storage means.

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2. (Original) A facsimile signal transmitting device as recited in claim 1, characterized in that, when outputting said facsimile signals onto said transmission line, said transmitting means adds a concerned one of said facsimile signals with a control signal indicating the use of a first-dimensional coding method (MH coding method) as the coding system of said facsimile terminals.

3. (Original) A facsimile signal transmitting device as recited in claim 1, characterized in that, when outputting said facsimile signals onto said transmission line, said transmitting means adds a concerned one of said facsimile signals with a control signal indicating the minimum scanning time of said facsimile terminals while at the same time suitably changing said minimum scanning time.

4. (Original) A facsimile signal transmitting device comprising:
compressing means for data compressing facsimile signals provided from a transmitting facsimile terminal;
first storage means for storing therein said facsimile signals compressed by said compressing means; sending means for generating frame data by combining the current facsimile signals compressed by said compressing means and the previous facsimile signals stored in said first storage means and for outputting said frame data onto a transmission line;

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receiving means for receiving said frame data when it is provided by said transmitting means onto said transmission line and for disassembling said frame data into a plurality of facsimile signals;

expanding means for data expanding said plurality of facsimile signals disassembled by said receiving means;

second storage means for storing therein said plurality of facsimile signals expanded by said expanding means; and

signal selecting means which, when receiving a frame detection signal indicating that said frame data provided on said transmission line has been transmitted without being discarded during transmission, supplies a receiving facsimile terminal with the oldest one of said plurality of facsimile signals expanded by said expanding means and, when receiving a frame detection signal indicating that said frame data was discarded during transmission, supplies said receiving facsimile terminal with a facsimile signal corresponding to the oldest one of said facsimile signals stored in said second storage means.

5. (Original) A facsimile signal transmitting device comprising:

transmitting means for outputting onto a transmission line facsimile signals provided from a transmitting facsimile terminal;

receiving means for receiving said facsimile signals when they are provided by said transmitting means onto said transmission line; and

signal selecting means which, when receiving a frame detection signal indicating that said facsimile signals provided on said transmission line have

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been transmitted without being discarded during transmission, supplies a receiving facsimile terminal with said facsimile signals received by said receiving means and, when receiving a frame detection signal indicating that said facsimile signals were discarded during transmission, supplies said receiving facsimile terminal with dummy data.

6. (Original) A facsimile signal transmitting device as claimed in claim 5, characterized in that said signal selecting means outputs fill data as said dummy data.

7. (Original) A facsimile signal transmitting device as claimed in claim 5, characterized in that said signal selecting means outputs white line data as said dummy data.

8. (Original) A facsimile signal transmitting device comprising:
transmitting means for outputting onto a transmission line facsimile signals provided from a transmitting facsimile terminal;
receiving means for receiving said facsimile signals when they are output by said transmitting means onto said transmission line;
storage means for storing therein said facsimile signals received by said receiving means; and
signal selecting means which, when receiving a frame detection signal indicating that said facsimile signals provided on said transmission line have

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been transmitted without being discarded during transmission, supplies a transmitting facsimile terminal with said facsimile signals received by said receiving means and, when receiving a frame detection signal indicating that said facsimile signals were discarded during transmission, supplies said receiving facsimile terminal with previous facsimile signals stored in said storage means.

9. (Original) A facsimile signal transmitting device comprising:
 - transmitting means for outputting onto a transmission line facsimile signals provided from a transmitting facsimile terminal;
 - receiving means for receiving said facsimile signals when they are output onto said transmission line by said transmitting means;
 - detecting means for detecting an end of line code of each of said facsimile signals received by said receiving means; and
 - signal selecting means which, when receiving a frame detection signal indicating that said facsimile signals provided on said transmission line have been transmitted without being discarded during transmission, supplies a receiving facsimile terminal with said facsimile signals received by said receiving means and, when receiving a frame detection signal indicating that said facsimile signals were discarded during transmission, inserts predetermined line data between said end of line codes of said facsimile signals detected by said detecting means and supplies said receiving facsimile terminal

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with said facsimile signals having said line data inserted between their end of line codes.

10. (Original) A facsimile signal transmitting device as recited in claim 9, characterized in that said signal selecting means inserts fill data as said predetermined line data.

11. (Original) A facsimile signal transmitting device as recited in claim 9, characterized in that said signal selecting means inserts white line data as said predetermined line data.

12. (Original) A facsimile signal transmitting device as recited in claim 9, characterized in that said signal selecting means inserts, as said predetermined line data, previous or succeeding facsimile signals received.

13. (Original) A facsimile signal transmitting method wherein:
facsimile signals output from a transmitting facsimile terminal are stored;
current facsimile signals from said transmitting facsimile terminal and preceding facsimile signals are combined into frame data;
said frame data is output onto a transmission line;
when provided onto said transmission line, said frame data is received and disassembled into a plurality of facsimile signals;

said plurality of facsimile signals are stored;

when a frame detection signal is received which indicates that said frame data provided on said transmission line has been transmitted without being discarded during transmission, the oldest one of said plurality of disassembled facsimile signals is output to a receiving-side facsimile terminal; and

when a frame detection signal is received which indicates that said frame data was discarded during transmission, a facsimile signal corresponding to the oldest one of said stored facsimile signals is output to said receiving facsimile terminal.

14. (Original) A facsimile signal transmitting method as recited in claim 13, characterized in that when said facsimile signals are output onto said transmission line, a control signal indicating the use of a first-dimensional coding method (MH coding method) as the coding system of said facsimile terminals is added to said facsimile signals.

15. (Original) A facsimile signal transmitting method as recited in claim 13, characterized in that when said facsimile signals are output onto said transmission line, a control signal indicating the minimum scanning time of said facsimile terminals is added to said facsimile signals and said minimum scanning time is suitably changed.

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16. (Original) A facsimile signal transmitting method wherein:

facsimile signals output from a transmitting facsimile terminal are data compressed and stored;

the current and previous compressed facsimile signals are combined into frame data;

said frame data is output onto a transmission line;

when output onto said transmission line, said frame data is received and disassembled into a plurality of facsimile signals;

said plurality of facsimile signals are data expanded and stored;

when a frame detection signal is received which indicates that said frame data provided on said transmission line has been transmitted without being discarded during transmission, the oldest one of said plurality of expanded facsimile signal is output to a receiving facsimile terminal; and

when a frame detection signal is received which indicates that said frame data was discarded during transmission, a facsimile signal corresponding to the oldest one of said stored facsimile signal is output to said receiving facsimile terminal.

17. (Original) A facsimile signal transmitting method wherein:

facsimile signals provided from a transmitting facsimile terminal are output onto a transmission line;

when output onto said transmission line, said facsimile signals are received;

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when a frame detection signal is received which indicates said facsimile signals provided on said transmission line have been transmitted without being discarded during transmission, said received facsimile signals are output to a receiving facsimile terminal; and

when a frame detection signal is received which indicates that said facsimile signals were discarded during transmission, dummy data is output to said receiving facsimile terminal.

18. (Original) A facsimile signal transmitting method as recited in claim 17, characterized in that fill data is output as said dummy data which is provided to said receiving facsimile terminal.

19. (Original) A facsimile signal transmitting method as recited in claim 17, characterized in that white line data is output as said dummy data which is provided to said receiving facsimile terminal.

20. (Original) A facsimile signal transmitting method wherein:
facsimile signals provided from a transmitting facsimile terminal are output onto a transmission line;

when output onto said transmission line, said facsimile signals are received and stored;

when a frame detection signal is received which indicates that said facsimile signals provided on said transmission line have been transmitted

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without being discarded during transmission, said received facsimile signals are output to a receiving facsimile terminal; and

when a frame detection signal is received which indicates that said facsimile signals were discarded during transmission, facsimile signals stored previously are output to said receiving facsimile terminal.

21. (Original) A facsimile signal transmitting method wherein:

facsimile signals provided from a transmitting facsimile terminal are output onto a transmission line;

when output onto said transmission line, said facsimile signals are received; and

when a frame detection signal is received which indicates that said facsimile signals provided on said transmission line have been transmitted without being discarded during transmission, said received facsimile signals are output to a receiving facsimile terminal; and

when a frame detection signal is received which indicates that said facsimile signals were discarded during transmission, end of line codes of said received facsimile signals are detected, then predetermined line data is inserted between said end of line codes of said received facsimile signals, and said facsimile signals with said line data inserted between their end of line codes are output to said receiving facsimile terminal.

22. (Original) A facsimile signal transmitting method as recited in claim 21, characterized in that fill data is inserted as said predetermined line data.

23. (Original) A facsimile signal transmitting method as recited in claim 21, characterized in that white line data is inserted as said predetermined line data.

24. (Original) A facsimile signal transmitting method as recited in claim 21, characterized in that a facsimile signal received previously or successively is inserted as said predetermined line data.

25. (New) A facsimile signal transmitting device for transmitting facsimile signals from a facsimile terminal, said facsimile signal transmitting device comprising:

a frame assembling part for generating a frame data by combining a facsimile signal output from said facsimile terminal and a redundancy facsimile signal output from said facsimile terminal before said facsimile signal, and for outputting the frame data onto a transmission line.

26. (New) The facsimile signal transmitting device as recited in claim 25, further comprising a signal storage part for storing said facsimile signal output from said facsimile terminal, wherein said frame assembling part

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generates the frame data based on facsimile signals stored in said signal storage part.

27. (New) The facsimile signal transmitting device as recited in claim 25, wherein said frame assembling part generates the frame data by combining the facsimile signal output from said facsimile terminal and a plurality of previous facsimile signals also output from said facsimile terminal.

28. (New) The facsimile signal transmitting device as recited in claim 27, wherein said frame assembling part generates the frame data by combining an nth facsimile signal, an (n-1)th facsimile signal output before the nth facsimile signal, and an (n-2)th facsimile signal output before the (n-1)th facsimile signal all output from said facsimile terminal.

29. (New) The facsimile signal transmitting device as recited in claim 25, wherein the facsimile signal is transmitted more than once.

30. (New) The facsimile signal transmitting device as recited in claim 25, wherein said transmission line forms an Asynchronous Transfer Mode (ATM) network or a packet communication network.

31. (New) A facsimile signal receiving device for receiving facsimile signals a facsimile transmitting device, said facsimile signal receiving device comprising:

a frame disassembling part for receiving a plurality of frame data including previous frame data and current frame data, wherein each frame data includes a combination of a facsimile signal and a redundancy facsimile signal; and

a selector which for supplying the facsimile signal of the current frame data upon determination that the frame data is transmitted without being discarded, and for supplying the redundancy facsimile signal of the previous frame data upon determination that the frame data is discarded.

32. (New) The facsimile signal receiving device as recited in claim 31, wherein said frame disassembling part disassembles each frame data into its respective facsimile signal and redundancy facsimile signal, said facsimile signal receiving device further comprising a restored data storage part for storing therein the facsimile signals disassembled by said frame disassembling part, wherein said selector supplies as the redundancy facsimile signal from the facsimile signals stored in said restored data storage part.

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33. (New) A method of transmitting facsimile signals output from a facsimile terminal, said method comprising the steps of:

generating frame data by combining a facsimile signal output from the facsimile terminal and a redundancy facsimile signal previously output from the facsimile terminal before the facsimile signal; and
transmitting the frame data onto a transmission line.

34. (New) The facsimile signal transmitting device as recited in claim 25, wherein the redundancy facsimile signal is a previous facsimile signal previously output by said facsimile terminal.

35. (New) The facsimile signal receiving device as recited in claim 31 wherein the redundancy facsimile signal of the previous frame data corresponds to the facsimile signal of the current frame data.